

HO-988

Union Dam Tunnel

B & O Railroad, Patapsco River beneath U. S. Route 40.

Private

**Description:**

The Union Dam Tunnel of the B & O Railroad is located along the Patapsco River beneath U. S. Route 40. The east end of the tunnel is set about 75 feet east of the slope. The tunnel entrance wall is semi-circular-arched, rock-faced ashlar sandstone with raised-bead pointing. Above the tunnel arch is a plaque that appears to be marble and is carved with "19 - UNION DAM - 02." The tunnel has a brick barrel vault. There are recesses in the brick tunnel wall. The tunnel is single-track now. The tunnel construction is identical to the east end, with the same date plaque. Near the east mouth of the tunnel and along the river between it and the hill that the tunnel passes through are some stacks of stone stringers that date to the earliest construction of the railroad, before the tunnel was built.

**Significance:**

The B. & O. Railroad first began laying their main line in 1829 and 1830. The second division of the main line began at Ellicott's Mills and proceeded west to the fork in the Patapsco, and stone stringers with plate rail were used here from the beginning. The stone stringers were designed with the center of the track clear, so that horses could haul the passenger and freight cars. In 1845 the B. & O. decided to rebuild its entire track from Baltimore to Harper's Ferry, substituting U-shaped edge rail for the earlier strap rail. This was done by 1849. No doubt the valuable iron was taken up and recycled, while the stone stringers were left where they lay. The curve at Union Dam, where the track swung around a jutting section of hill, was very tight, and as equipment got longer, heavier, and faster, tight turns created operational problems. In the summer of 1900 the B. & O. requested bids to remove "dangerous and troublesome curves" at Ilchester and Union Dam by cutting tunnels through the hills. The 1902 Union Dam Tunnel, 810 feet long and 30 feet wide, was built on a more-gradual seven degree curve. The portals were built of sandstone from Grafton, West Virginia and Somerset, Pennsylvania.

# Maryland Historical Trust Maryland Inventory of Historic Properties Form

Inventory No. HO-988

## 1. Name of Property (indicate preferred name)

historic Union Dam Tunnel

other

## 2. Location

street and number B & O Railroad, Patapsco River beneath U. S. Route 40.  not for publication

city, town Ellicott City  vicinity

county Howard

## 3. Owner of Property (give names and mailing addresses of all owners)

name CSX Transportation

street and number 500 Water Street

telephone

city, town Jacksonville

state FL

zip code 32202

## 4. Location of Legal Description

courthouse, registry of deeds, etc. Howard County Courthouse liber 1938 folio 181

city, town Ellicott City tax map 18 tax parcel 0 tax ID number

## 5. Primary Location of Additional Data

- Contributing Resource in National Register District  
 Contributing Resource in Local Historic District  
 Determined Eligible for the National Register/Maryland Register  
 Determined Ineligible for the National Register/Maryland Register  
 Recorded by HABS/HAER  
 Historic Structure Report or Research Report at MHT  
 Other: \_\_\_\_\_

## 6. Classification

Category	Ownership	Current Function	Resource Count	
			Contributing	Noncontributing
<input type="checkbox"/> district	<input type="checkbox"/> public	<input type="checkbox"/> agriculture	<input type="checkbox"/> landscape	<input type="checkbox"/> buildings
<input type="checkbox"/> building(s)	<input checked="" type="checkbox"/> private	<input type="checkbox"/> commerce/trade	<input type="checkbox"/> recreation/culture	<input type="checkbox"/> sites
<input checked="" type="checkbox"/> structure	<input type="checkbox"/> both	<input type="checkbox"/> defense	<input type="checkbox"/> religion	<input type="checkbox"/> structures
<input type="checkbox"/> site		<input type="checkbox"/> domestic	<input type="checkbox"/> social	<input type="checkbox"/> objects
<input checked="" type="checkbox"/> object		<input type="checkbox"/> education	<input checked="" type="checkbox"/> transportation	<input type="checkbox"/> Total
		<input type="checkbox"/> funerary	<input type="checkbox"/> work in progress	
		<input type="checkbox"/> government	<input type="checkbox"/> unknown	
		<input type="checkbox"/> health care	<input type="checkbox"/> vacant/not in use	
		<input type="checkbox"/> industry	<input type="checkbox"/> other:	
				<b>Number of Contributing Resources previously listed in the Inventory</b>
				0

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## 7. Description

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### Condition

excellent       deteriorated  
 good             ruins  
 fair               altered

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Prepare both a one paragraph summary and a comprehensive description of the resource and its various elements as it exists today.

### Summary:

The Union Dam Tunnel of the B & O Railroad is located along the Patapsco River beneath U. S. Route 40. The east end of the tunnel is set about 75 feet east of the slope. The tunnel entrance wall is semi-circular-arched, rock-faced ashlar sandstone with raised-bead pointing. Above the tunnel arch is a plaque that appears to be marble and is carved with "19- UNION DAM - 02." The tunnel has a brick barrel vault. There are recesses in the brick tunnel wall. The tunnel is single-track now. The tunnel construction is identical to the east end, with the same date plaque. Near the east mouth of the tunnel and along the river between it and the hill that the tunnel passes through are some stacks of stone stringers that date to the earliest construction of the railroad, before the tunnel was built.

### Description:

The Union Dam Tunnel of the B & O Railroad is located along the Patapsco River beneath U. S. Route 40. The east end of the tunnel is set about 75 feet east of the slope, and the ground at the east end of the tunnel is flat on top of the tunnel, with the hill to the south and the river to the north. The north end of the tunnel wall has been partially undermined by erosion and patched or filled with brick and concrete. The tunnel entrance wall is semi-circular-arched, rock-faced ashlar sandstone with raised-bead pointing. The top coping of the wall is also ashlar sandstone, but of larger blocks that are slightly cantilevered. Above the tunnel arch is a plaque that appears to be marble and is carved with "19 - UNION DAM - 02." The tunnel side voussoirs of the arch have a picked finish. In front of the tunnel is a speed limit sign with "15."

The tunnel has a brick barrel vault. There are recesses in the brick tunnel wall. The tunnel is single-track now. The west end of the tunnel has hills on both sides, and the hills slope steeply up from the top of the tunnel. The tunnel construction is identical to the east end, with the same date plaque.

Near the east mouth of the tunnel and along the river between it and the hill that the tunnel passes through are some stacks of stone stringers that date to the earliest construction of the railroad, before the tunnel was built. These stringers are roughly 40 inches long by roughly 18 inches wide at their widest point, and are granite that has been cut flat on the top, with a slight indentation cut on the inner top face. This depression is only about a  $\frac{1}{8}$  to  $\frac{1}{4}$  inch deep and between  $1\frac{1}{2}$  and 2 inches wide, with rust stains along it, and there are drill holes spaced about every 18 inches in this depression; the drill holes are about two inches deep. The depression held iron strap rail that was spiked down to the stone stringer, and there is at least one stone that has a deeper depression with three holes in it where the ends of two pieces of strap rail overlapped and were spiked together. Several of these stones have a drill hole in them indicating that they were quarried.

## 8. Significance

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Period	Areas of Significance	Check and justify below		
<input type="checkbox"/> 1600-1699	<input type="checkbox"/> agriculture	<input type="checkbox"/> economics	<input type="checkbox"/> health/medicine	<input type="checkbox"/> performing arts
<input type="checkbox"/> 1700-1799	<input type="checkbox"/> archeology	<input type="checkbox"/> education	<input type="checkbox"/> industry	<input type="checkbox"/> philosophy
<input checked="" type="checkbox"/> 1800-1899	<input type="checkbox"/> architecture	<input type="checkbox"/> engineering	<input type="checkbox"/> invention	<input type="checkbox"/> politics/government
<input checked="" type="checkbox"/> 1900-1999	<input type="checkbox"/> art	<input type="checkbox"/> entertainment/ recreation	<input type="checkbox"/> landscape architecture	<input type="checkbox"/> religion
<input type="checkbox"/> 2000-	<input type="checkbox"/> commerce	<input type="checkbox"/> ethnic heritage	<input type="checkbox"/> law	<input type="checkbox"/> science
	<input type="checkbox"/> communications	<input type="checkbox"/> exploration/ settlement	<input type="checkbox"/> literature	<input type="checkbox"/> social history
	<input type="checkbox"/> community planning		<input type="checkbox"/> maritime history	<input checked="" type="checkbox"/> transportation
	<input type="checkbox"/> conservation		<input type="checkbox"/> military	<input type="checkbox"/> other: _____

Specific dates      N/A      Architect/Builder      N/A

Construction dates      1902

Evaluation for:

National Register

Maryland Register

not evaluated

Prepare a one-paragraph summary statement of significance addressing applicable criteria, followed by a narrative discussion of the history of the resource and its context. (For compliance projects, complete evaluation on a DOE Form – see manual.)

### Summary:

The B. & O. Railroad first began laying their main line in 1829 and 1830. The second division of the main line began at Ellicott's Mills and proceeded west to the fork in the Patapsco, and stone stringers with plate rail were used here from the beginning. The stone stringers were designed with the center of the track clear, so that horses could haul the passenger and freight cars. In 1845 the B. & O. decided to rebuild its entire track from Baltimore to Harper's Ferry, substituting U-shaped edge rail for the earlier strap rail. This was done by 1849. No doubt the valuable iron was taken up and recycled, while the stone stringers were left where they lay. The curve at Union Dam, where the track swung around a jutting section of hill, was very tight, and as equipment got longer, heavier, and faster, tight turns created operational problems. In the summer of 1900 the B. & O. requested bids to remove "dangerous and troublesome curves" at Ilchester and Union Dam by cutting tunnels through the hills. The 1902 Union Dam Tunnel, 810 feet long and 30 feet wide, was built on a more-gradual seven degree curve. The portals were built of sandstone from Grafton, West Virginia and Somerset, Pennsylvania.

### Significance:

The B. & O. Railroad experimented with several types of track when they first began laying their main line in 1829 and 1830. Because of the expense of iron, plate rail was chosen, and though the first track was laid on wood stringers, the preferred method was to lay it on stone stringers, since it was assumed that they would be more durable than wood. The second division of the main line began at Ellicott's Mills and proceeded west to the fork in the Patapsco, and stone stringers were used here from the beginning. The stone stringers were designed with the center of the track clear, so that horses could haul the passenger and freight cars. The B. & O. was not certain about whether it should experiment with steam locomotives, in part because they were only being constructed in Great Britain and were very expensive. However, stone stringers were much slower to lay and were less giving, and the flexible character of the wood proved to be preferable. The thin strap rail used on the stringers eventually wore and broke in places, causing the loose end to curl up and impale the floor of one of the cars. Even

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Name

**Continuation Sheet**

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before the cars and locomotives used had become much larger and heavier, it was recognized that the thin strap rail was insufficient. In 1838 it was replaced with early versions of "T" rail, laid on wood sleepers in stone ballast, for the laying of new track. In 1845 the B. & O. decided to rebuild its entire track from Baltimore to Harper's Ferry, substituting U-shaped edge rail for the earlier strap rail. This was done by 1849. No doubt the valuable iron was taken up and recycled, while the stone stringers were left where they lay.<sup>1</sup>

A modern photograph shows three surviving lines of stone stringers, two for the west-bound track, closest to the river, and one for the east-bound track, on the hill side of the line. The other line of stringers for the east-bound track was apparently removed when a sewer line was put in some years ago. Only part of one line of stringers could be located, probably because of flooding that has brought in silt, and because of overgrowth.<sup>2</sup>

According to H. H. Harwood, Jr., the B. & O. Railroad began re-double tracking their main line west of Ellicott City c. 1857, at the same time re-aligning some track and easing some curves. The curve at Union Dam, where the track swung around a jutting section of hill, became 13 degrees, which was still very tight. This section of the main line was always a problem for the railroad, for several reasons. In 1868 heavy rains washed out part of the newly-laid track, causing a locomotive to derail at Union Dam. Heavy traffic here led the B. & O. to put in a siding in order for freight trains to clear the line for passenger trains. Before this could be done, an eastbound freight train collided with the rear of a slower east-bound freight, sending cars onto the west-bound track. A west-bound passenger train then rounded the curve here and could not stop before colliding with the freight cars.<sup>3</sup>

As equipment got longer, heavier, and faster, tight turns created operational problems. In the summer of 1900 the B. & O. requested bids to remove "dangerous and troublesome curves" at Ilchester and Union Dam by cutting tunnels through the hills. The 1902 Union Dam Tunnel, 810 feet long and 30 feet wide, was built on a more-gradual seven degree curve. The east end was cut and cover and the rest through medium granite and mica schist. The portals were built of sandstone from Grafton, West Virginia and Somerset, Pennsylvania. The tunnel is still used by CSX trains, but has been single-tracked now.<sup>4</sup>

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<sup>1</sup> James D. Dilts, *The Great Road: The Building of the Baltimore & Ohio, the Nation's First Railroad, 1828-1853*. (Stanford, CA: Stanford University Press, 1993), pp. 128-29, 252-53, 310-11.

<sup>2</sup> Herbert H. Harwood, Jr., *Impossible Challenge: The Baltimore and Ohio Railroad in Maryland*. (Baltimore: Barnard Roberts & Co., 1979), p. 412.

<sup>3</sup> Harwood, *Impossible Challenge*, p. 49. *Baltimore Sun*, 10 August 1868, p. 1. *Baltimore Sun*, 3 May 1887, Supplement, [p. 2]. *Baltimore Sun*, 12 December 1887, Supplement, [p. 2]. *Baltimore Sun*, 18 August 1887, p. 1. *Baltimore Sun*, 19 August 1887, p. 1.

<sup>4</sup> *Baltimore Sun*, 23 August 1900, p. 8. Harwood, *Impossible Challenge*, p. 452.

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## 9. Major Bibliographical References

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See footnotes

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## 10. Geographical Data

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Acreage of surveyed property 23 A  
Acreage of historical setting 119 A R/W  
Quadrangle name Ellicott City Quadrangle scale: 1:24000

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### Verbal boundary description and justification

The boundaries consist of the Patapsco River on the north, east, and south sides, and a straight line connecting the north and south points of the river to the west of the railroad tracks, which takes in the tunnel and the old roadbed with the stone stringers.

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## 11. Form Prepared by

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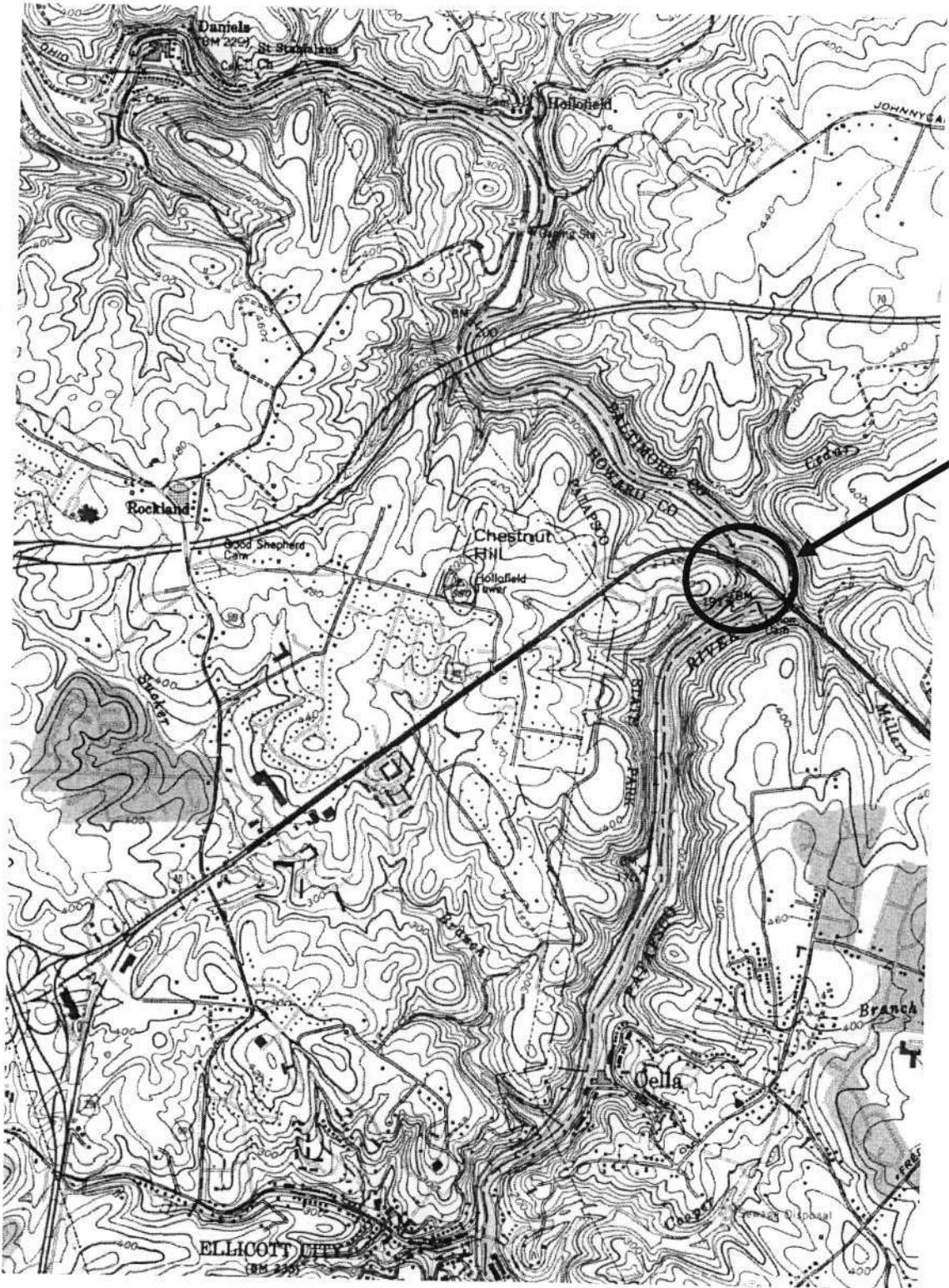
name/title	Ken Short		
organization	Howard County Department of Planning & Zoning	date	September 2009
street & number	3430 Courthouse Drive	telephone	410-313-4335
city or town	Ellicott City	state	Maryland

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The Maryland Inventory of Historic Properties was officially created by an Act of the Maryland Legislature to be found in the Annotated Code of Maryland, Article 41, Section 181 KA, 1974 supplement.

The survey and inventory are being prepared for information and record purposes only and do not constitute any infringement of individual property rights.

return to: Maryland Historical Trust  
DHCD/DHCP  
100 Community Place  
Crownsville, MD 21032-2023  
410-514-7600



HO-988  
Union Dam Tunnel, B. & O. Railroad  
Patapsco State Park, Hollofield Area, below Route 40  
Ellicott City Quad

HO-988  
Union Dam Tunnel  
B. & O. Railroad, Patapsco River under Rt. 40  
Howard County, Maryland  
Ken Short, photographer

Photo Log

Nikon D-70 camera  
HP Premium Plus paper  
HP Gray Photo print cartridge

HO-0988\_2009-04-21\_01  
East portal with landscape

HO-0988\_2009-04-21\_02  
East portal

HO-0988\_2009-04-21\_03  
East portal datestone

HO-0988\_2009-04-21\_04  
West portal with landscape

HO-0988\_2009-04-21\_05  
West portal

HO-0988\_2009-04-21\_06  
Stone stringers



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Union Dam Tunnel

B&O Railroad, Patapsco River under Rt. 40

Howard County, MD

Ken Short

April 21, 2009

MD SHPO

East Portal with landscape

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HO-988

Union Dam Tunnel

B&O Railroad, Patapsco River under Rt. 40

Howard County, MD

Ken Short

April 21, 2009

MD SHPO

East Portal

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19-UNION DAV-02

H0-988

Union Dam Tunnel

B&O Railroad, Patapsco River under Rb. 40  
Howard County, MD

Ken Short

April 21, 2009

MD SHPO

East Portal Datestone

3/6



HO-9888

Union Dam Tunnel

B&O Railroad, Patapsco River under Rt. 40

Howard County, MD

Ken Short

April 21, 2009

MD SAPO

West Portal with landscape

4/6



UNION DAM



HO-988

Union Dam Tunnel

B&O Railroad, Patapsco River under Rt. 40

Howard County, MD

Ken Short

April 21, 2009

MD SHPO

West Portal

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HO-988

Union Dam Tunnel

B&O Railroad, Patapsco River under Rt. 40

Howard County, MD

Ken Short

April 21, 2009

MD SHPO

Stone Stringers

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